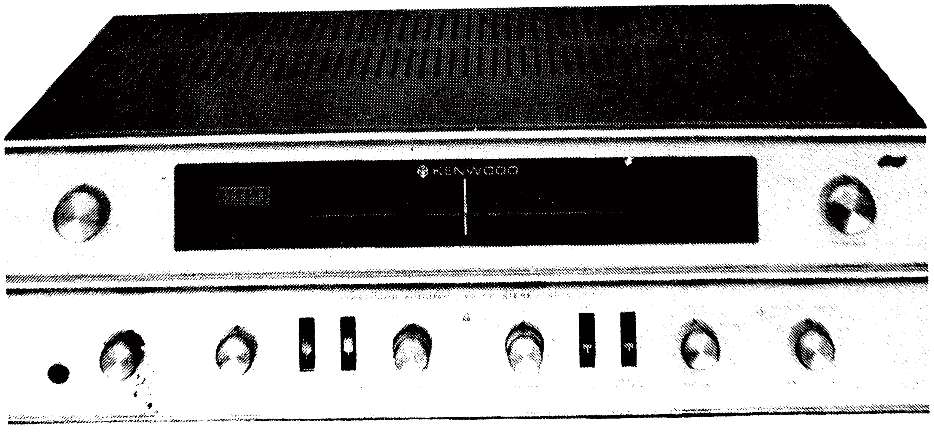
KENWOOD
HI/FI STEREO COMPONENTS

TK-60

SERVICE MANUAL

. . . the sound
approach
to quality

MODEL TK-60



ALL TRANSISTOR
AM-FM AUTOMATIC STEREO RECEIVER

PARTS DESCRIPTION LIST

RF "UA11023B" SECTION

CAPACITORS

Symbol No.	Description
C1	Ceramic 5mmfd ±10%
C2	Ceramic 18mmfd ±10%
C3,4	Ceramic 0.01mfd ±20%
C5,6	Ceramic 18mmfd ±10%
C7	Ceramic 5mmfd ±10%
C8	Ceramic 4mmfd ±10%
C9	Ceramic 470mmfd+100%,-0
C10~13	Ceramic 0.01mfd ±20%
C14	Ceramic 7mmfd ±10%
C15	Ceramic 12mmfd ±10%
C16	Ceramic 0.01mfd ±10%
CT1~3	Cylinder TRIM 2mmfd-10mmfd
CT4	Ceramic TRIM More than 10mmfd

RESISTORS

Symbol No.	Description
R1	Composition 1K ±5% 1/3W
R2	Composition 2.2K±5% 1/3W
R3	Composition 15K±5% 1/3W
R4	Composition 220ohm±5% 1/3W
R5	Composition 15K±5% 1/3W
R6	Composition 2.2K±5% 1/3W
R7	Composition 1.5K±5% 1/3W
R8	Composition 5.6K±5% 1/3W
R9	Composition 220ohm±5% 1/3W
R10	Composition 2.2K±5% 1/3W
R11	Composition 1.5K±5% 1/3W
R12	Composition 2.2K±5% 1/3W
R13	Composition 10K±5% 1/3W

COILS/TRANSFORMER

Symbol No.	Description	Part No.
L1	FM ANT Coil	L24-UA11023A
L2	FM RF Coil	L24-UA11023RA
L3	FM RF Coil	L24-UA11023RB
L4	FM OSC Coil	L24-UA11023S
L5	FM RF Choke coil	L20-010
T1	FM IFT	L52-10

TRANSISTORS

Symbol No.	Description
Q1	2SA240 FM RF Amp.
Q2	2SA239 FM MIXER
Q3	2SA240 FM OSC

IF "UA12024A" SECTION

CAPACITORS

Symbol No.	Description
C1	Ceramic 0.04mfd+100%,-0
C2	Ceramic 0.01mfd+100%,-0
C3,4	Ceramic 0.04mfd+100%,-0
C5	Ceramic 0.01mfd+100%,-0
C6	Ceramic 0.04mfd+100%,-0
C7	Polystirole 1000mmfd±5%
C8~10	Ceramic 0.01mfd+100%,-0
C11	Polystirole 1000mmfd±5%
C12,13	Ceramic 0.01mfd+100%,-0
C14	Ceramic 30mmfd±10%
C15~18	Ceramic 0.01mfd+100%,-0
C19,20	Ceramic 200mmfd±10%
C21	Ceramic 100mmfd±10%
C22	Ceramic 0.01mfd+100%,-0
C23	Ceramic 0.02mfd+100%,-0
C24	Ceramic 10mmfd±10%
C25	Ceramic 330mmfd±10%
C26,27	Ceramic 0.4mfd+100%,-0
C28	Ceramic 0.01mfd+100%,-0
C29	Ceramic 0.02mfd+100%,-0
C31	Electrolytic Tubular 100mfd 15WV
C32	Electrolytic Tubular 10mfd 12WV
C33	Electrolytic Tubular 10mfd 15WV
C35	Ceramic 0.04mfd+100%,-0
C36,37	Ceramic 0.01mfd+100%,-0
C38	Polystirole 1000mmfd±5%

PARTS DESCRIPTION LIST

RESISTORS

Symbol No.	Description
R1	Composition 1K±5% 1/3W
R2	Composition 1.2K±5% 1/3W
R3	Composition 22ohm±5% 1/3W
R4	Composition 22K±5% 1/3W
R5	Composition 1K±5% 1/3W
R6	Composition 33K±5% 1/3W
R7	Composition 4.7K±5% 1/3W
R8,9	Composition 1K±5% 1/3W
R10	Composition 22K±5% 1/3W
R11	Composition 4.7K±5% 1/3W
R12,13	Composition 1K±5% 1/3W
R14	Composition 22K±5% 1/3W
R15	Composition 4.7K±5% 1/3W
R16,17	Composition 1K±5% 1/3W
R18	Composition 22K±5% 1/3W
R19	Composition 4.7K±5% 1/3W
R20	Composition 470 ohm±5% 1/3W
R21	Composition 1K±5% 1/3W
R22	Composition 470ohm±5% 1/3W
R23,24	Composition 2.2K±5% 1/3W
R25,26	Composition 10K±5% 1/3W
R27	Composition 82K±5% 1/3W
R28	Composition 47K±5% 1/3W
R29	Composition 1K±5% 1/3W
R30	Composition 47K±5% 1/3W
R31,32	Composition 5.6K±5% 1/3W
R33	Composition 3.3K±5% 1/3W
R34	Composition 47K±5% 1/3W
R35	Composition 5.6K±5% 1/3W
R36	Composition 3.3K±5% 1/3W
R37	Composition 15K±5% 1/3W
R44	Composition 100K±5% 1/3W
R45	Composition 47K±5% 1/3W

COILS/TRANSFORMER

Symbol No.	Description	Part No.
T51	FM IFT 10.7MHz	L02-60
T51'	AM IFT 455KHz	L01-64
T52	FM IFT 10.7MHz	L02-61
T52'	AM IFT 455KHz	L01-65
T53	FM IFT 10.7MHz	L02-62
T54	FM IFT 10.7MHz	L02-63
T55	FM IFT 10.7MHz	L02-64
T56	AM OSC Coil	L07-12
T57	AM IFT 455KHz	L01-63
L51	Choke coil	L20-010
L52	Choke coil	L20-010
L53	Choke coil	L20-010

TRANSISTORS/DIODES

Symbol No.	Description
Q1	2SA234B FM IF Amp.
Q2	2SA234B FM IF Amp.
Q3	2SA234B FM IF Amp.
Q4	2SA234B FM IF Amp.
Q5	2SA234B FM IF Amp.
Q6	2SA354B AM MIXER
D1	1N60 AM Det.
D2,3	1N60 FM Det.
D4	1N60 OSC LIMITTER
D5	1N60 A.G.C. Det.
D6	1N60 AM INDICATOR Rect.
D7	1N60 FM INDICATOR Rect.

POTENTIOMETER

Symbol No.	Description	Part No.
VR1	50K(B) Level Set	R10-63

MPX "UA14023A" SECTION

CAPACITORS

Symbol No.	Description	
C1	Electrolytic Tubular	10mfd 12WV
C2	Mica	6600mmfd±5%
C3	Ceramic	0.04mfd+100%,-0
C4	Mica	6600mmfd±5%
C5	Ceramic	0.04mfd+100%,-0
C6	Mica	2500mmfd±5%
C7	Electrolytic Tubular	50mfd 15WV
C8,9	Ceramic	100mmfd±10%
C10,11	Ceramic	330mmfd+100%,-0
C12,13	Ceramic	1200mmfd+100%,-0
C14	Electrolytic Tubular	10mfd 12WV
C15	Polystirole	470mmfd±5%
C16	Polystirole	120mmfd±5%

PARTS DESCRIPTION LIST

Symbol No.	Description	
C17,18	Ceramic	0.04mfd+100%,-0
C19	Ceramic	560mmfd+100%,-0
C20	Mylar	0.1mfd±20%
C21	Mica	1000mmfd±5%
C22	Ceramic	560mmfd+100%,-0
C23	Mylar	0.1mfd ±20%
C24	Electrolytic Tubular	10mfd 15WV
C25	Electrolytic Tubular	1mfd 25WV
CT1	Cylinder TRIM	20mmfd-40mmfd

RESISTORS

Symbol No.	Description	
R1	Composition	270K±5% 1/2W
R2	Composition	220K±5% 1/2W
R3	Composition	4.7K±5% 1/2W
R4	Composition	22K±5% 1/2W
R5	Composition	1.8K±5% 1/2W
R6	Composition	180ohm±5% 1/2W
R7	Composition	10K±5% 1/2W
R8	Composition	22K±5% 1/2W
R9	Composition	2.2K±5% 1/2W
R10	Composition	220ohm±5% 1/2W
R11~16	Composition	22K±5% 1/2W
R17,18	Composition	100K±5% 1/2W
R19	Composition	15K±5% 1/2W
R20	Composition	10K±5% 1/2W
R21	Composition	470K±5% 1/2W
R22	Composition	6.8K±5% 1/2W
R23	Composition	470ohm±5% 1/2W
R24	Composition	470K±5% 1/2W
R25,26	Composition	100K±5% 1/2W
R27	Composition	15K±5% 1/2W
R28	Composition	220ohm±5% 1/2W
R29	Composition	4.7K±5% 1/2W
R30,31	Composition	56K±5% 1/2W

POTENTIOMETER

Symbol No.	Description	Part No.
VR1	50K(B) Level set	R10-56

COILS

Symbol No.	Description	Part No.
L101	19KHz Tune coil	L17-04
L102	19KHz Tune coil	L17-05
L103	38KHz Doubler	L17-43
L104	10mH Filter coil	L17-44
L105	39mH Filter coil	L17-29
L106	19KHz Tune coil	L17-23

TRANSISTORS/DIODES

Symbol No.	Description
Q1,2	2SC281B 19KHz Pilot Signal Amp.
Q3	2SC281B 38KHz Pilot Signal Amp.
Q4	2SC281B Pilot Signal Amp.
Q5	2SC281B DC Amp.
Q6	2SB54 DC Amp.
Q7	2SC281B Switching
D1,2	1N60 38KHz Doubler
D3~6	1N60 MPX Det.
D7	1N60 Noise Cancel
D8	1N60 Rect.
D9	1N60 Switching
TH1	SDT-1000 Thermistor

PRE AMP "8205" SECTION

CAPACITORS

Symbol No.	Description	
C1	Electrolytic Tubular	100mfd 15WV
C2,3	Electrolytic Tubular	10mfd 12WV
C4	Electrolytic Tubular	10mfd 15WV
C5,6	Electrolytic Tubular	50mfd 6WV
C7	Electrolytic Tubular	10mfd 15WV
C8,9	Ceramic	100mmfd±10%
C10	Electrolytic Tubular	10mfd 12WV

PARTS DESCRIPTION LIST

Symbol No.	Description	
C11,12	Electrolytic Tubular	50mfd 25WV
C13,14,15	Electrolytic Tubular	10mfd 12WV
C16	Ceramic	0.005mfd±20%
C17	Electrolytic Tubular	100mfd 3WV
C18,19	Ceramic	560mmfd±20%
C20,21	Electrolytic Tubular	10mfd 12WV

RESISTORS

Symbol No.	Description	
R1	Composition	5.6K±5% 1/2W
R2	Composition	15K±5% 1/3W
R3,4	Composition	470ohm±5% 1/2W
R5	Composition	15K±5% 1/3W
R6	Composition	5.6K±5% 1/2W
R7,8	Composition	240K±5% 1/2W
R9	Composition	5.6K±5% 1/2W
R10,11	Composition	10K±5% 1/2W
R12	Composition	5.6K±5% 1/2W
R13	Composition	470ohm±5% 1/2W
R14	Composition	390K±5% 1/2W
R15	Composition	5.6K±5% 1/2W
R16,17	Composition	100ohm±5% 1/2W
R18	Composition	390K±5% 1/2W
R19	Composition	5.6K±5% 1/2W
R20	Composition	470ohm±5% 1/2W
R21,22	Composition	15K±5% 1/2W
R35,36	Composition	220K±5% 1/2W
R37,38	Composition	470K±5% 1/2W

POTENTIOMETERS

Symbol No.	Description	Part No.
VR1	5K(B) Separation	R10-53

PRINTED CIRCUITS

Symbol No.	Description	Part No.
PC1	5.6K 0.008mfd Equalization	R15-59
PC2	27K, 390K, 0.0025mfd 0.009mfd Equalization	R15-61
PC3	5.6K 0.008mfd Equalization	R15-59
PC4	27K, 390K, 0.0025mfd 0.009mfd Equalization	R15-61

TRANSISTORS

Symbol No.	Description	
Q1,3	2SC350(R)	Phono E.Q. Amp.
Q2,4	2SC350(Y)	Phono E.Q. Amp.
Q5,6	2SC350(G)	Channel R. AF Amp.
Q6	2SC350(G)	Channel L. AF Amp.

MAIN AMP "821" SECTION

CAPACITORS

Symbol No.	Description	
C1	Electrolytic Tubular	10mfd 12WV
C2,3	Electrolytic Tubular	1mfd 25WV
C4	Ceramic	100mmfd±10%
C5	Electrolytic Tubular	50mfd 25WV
C6	Ceramic	250mmfd±10%
C7	Electrolytic Tubular	10mfd 12WV
C8,9	Electrolytic Tubular	1mfd 25WV
C10	Ceramic	100mmfd±10%
C11	Electrolytic Tubular	50mfd 25WV
C12	Ceramic	250mmfd±10%
C13,14	Electrolytic Tubular	100mfd 3WV
C15	Electrolytic Tubular	50mfd 25WV
C16,17	Electrolytic Tubular	50mfd 6WV

PARTS DESCRIPTION LIST

RESISTORS

Symbol No.	Description	
R1	Composition	100K±5% 1/3W
R2	Composition	22K±5% 1/3W
R3	Composition	5.6K±5% 1/2W
R4	Composition	100ohm±5% 1/2W
R5	Composition	220K±5% 1/2W
R8	Composition	4.7K±5% 1/2W
R9	Composition	100ohm±5% 1/2W
R10	Composition	10K±5% 1/2W
R11	Composition	2.2K±5% 1/2W
R12	Composition	330ohm±5% 1/2W
R13	Composition	33ohm±5% 1/2W
R14	Composition	330ohm±5% 1/2W
R15	Composition	100K±5% 1/3W
R16	Composition	22K±5% 1/3W
R17	Composition	5.6K±5% 1/2W
R18	Composition	100ohm±5% 1/2W
R19	Composition	220K±5% 1/2W
R22	Composition	4.7K±5% 1/2W
R23	Composition	100ohm±5% 1/2W
R24	Composition	10K±5% 1/2W
R25	Composition	2.2K±5% 1/2W
R26	Composition	330ohm±5% 1/2W
R27	Composition	33ohm±5% 1/2W
R28	Composition	330ohm±5% 1/2W
R29	Composition	100K±5% 1/2W
R30	Composition	3.3K±5% 1/2W
R31	Composition	1K±5% 1/2W
R32,33	Composition	2.2K±5% 1/2W

TRANSISTORS/DIODES

Symbol No.	Description	
Q1	2SC350(G)	Channel L AF Amp.
Q2	2SC317	Channel L Driver
Q3	2SC626	Complementary
Q4	2SB89A	Complementary
Q5	2SC626	Complementary
Q6	2SB89A	Complementary
Q7	2SC317	Channel R Driver
Q8	2SC350(G)	Channel R AF Amp.
Q9	2SC281B	Protection
D1,2	1N60	Rect.
D3	SV-2	Stabilizer
D4,5	LV-2	Stabilizer
TH1,2	SDT-65	Thermistor

POTENTIOMETERS

Symbol No.	Description	Part No.
VR1	30K(B) DC Bias	R10-55
VR2	30K(B), DC Bias	R10-55
VR3	10K(B) Protection Level Set	R10-54
VR4	10K(B) Protection Level Set	R10-54
VR5	500B DC Bias	R10-46
VR6	500B DC Bias	R10-46

MAIN CHASSIS "AA33" SECTION

CAPACITORS

Symbol No.	Description	
C1,2	Ceramic	330mmfd±20%
C3,4	Mylar	0.0068mfd±20%
C5,6	Ceramic	0.001mfd±20%
C7,8	Mylar	0.2mfd±20%
C9,10	Mylar	0.04mfd±20%
C11,12	Mylar	0.2mfd±20%
C13,14	Mylar	0.003mfd±20%
C15,16	Mylar	0.0033mfd±20%
C17,18	Ceramic	750mmfd±20%
C19,20	Electrolytic Tubular	1000mfd 30WV
C21,22	Mylar	0.2mfd±20%
C24	Electrolytic Tubular	100mfd 25WV
C25	Electrolytic Tubular	1000mfd 30WV
C26	Electrolytic Tubular	1000mfd 50WV
C27	Electrolytic Tubular	200mfd 15WV
C28	Electrolytic Tubular	100mfd 15WV
C29	Electrolytic Tubular	200mfd 25WV
C30,31	Paper Tubular	0.02mfd±20%
C32	Electrolytic Tubular	1000mfd 15WV
C33	Paper Tubular	0.01mfd±20%
C34	Mylar	0.02mfd±20%

PARTS DESCRIPTION LIST

RESISTORS

Symbol No.	Description	
R1,2	Composition	4.7K±5% 1/2W
R3,4	Composition	270K±5% 1/2W
R5,6	Composition	2.2K±5% 1/2W
R7~10	Composition	10K±5% 1/2W
R11,12	Composition	1.8K±5% 1/2W
R13,14	Composition	5.6K±5% 1/2W
R15,16	Composition	1.5K±5% 1/2W
R17,18	Composition	6.8K±5% 1/2W
R19~22	Wire Wound	0.5 ohm±5% 1WL
R23,24	Wire Wound	5 ohm±5% 4WP
R25,26	Composition	330 ohm±5% 1/2W
R27,28	Composition	1K±5% 1/2W
R29	Composition	56 ohm±5% 1/2W
R30	Composition	220 ohm±5% 1/2W
R31	Wire Wound	1K±5% 2WP
R32	Composition	2.2K±5% 1/2W
R33	Composition	1.5K±5% 1/2W
R34	Wire Wound	300 ohm±5% 6WP
R35	Wire Wound	420 ohm±5% 4WP
R36	Composition	100 ohm±5% 1/2W
R38,39	Composition	150K±5% 1/2W

POTENTIOMETERS

Symbol No.	Description	Part No.
VR1	Dual 50K(D)VOLUME	R02-2126
VR2	50K(W) BALANCE	R01-2107
VR3	Dual 50K(A)BASS	R04-0202
VR4	Dual 50K(A)TREBLE	R04-0202

SWITCHES

Symbol No.	Description	Part No.
S1	SELECTOR Rotary	S03-607
S2	TAPE MONITOR See Saw	S10-22J
S3	MODE Rotary	S03-606
S4	HIGH FILTER See Saw	S10-22J
S5	LOUDNESS See Saw	S10-22J
S6	LOW FILTER See Saw	S10-22J
S7	OUTPUT Rotary	S03-253

TRANSISTORS, DIODES

Symbol No.	Description	
Q1	2SC669	Rect
Q2,3	2SC245(I)	Power Amp.
Q4,5	2SC245(I)	Power Amp.
D1	1S338	Rect
D2,3	DSIM	Rect
D4	SWO.5S	Rect

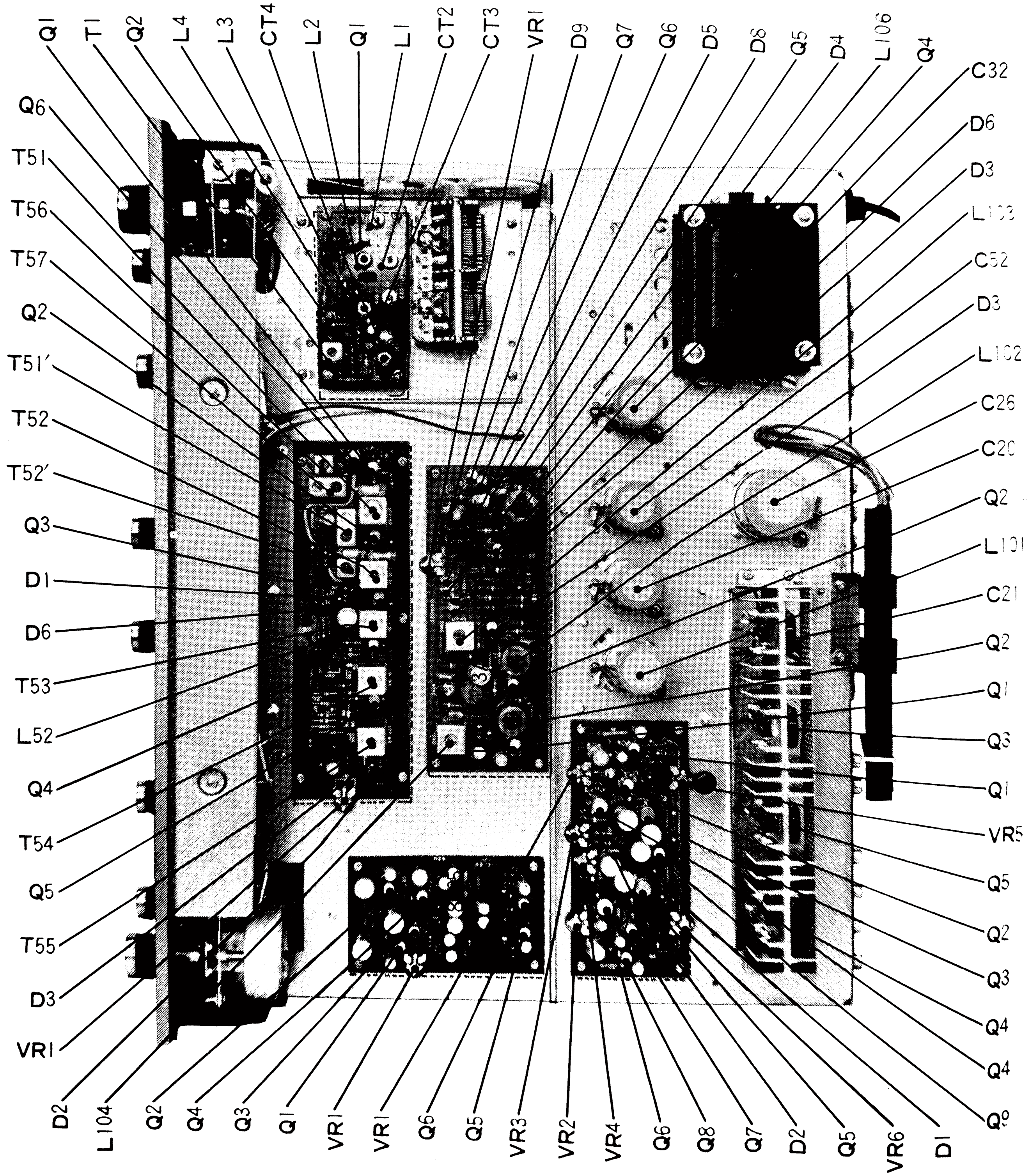
TRANSFORMERS

Symbol No.	Description	Part No.
P.T.	Transformer,Power	T01-156A

MISCELLANEOUS

Symbol No.	Description	Part No.
M	TUNING Meter	T11-57
-	Fuse Holder	S15-09
F	Fuse	S17-01
J	Stereo Phones Jack	E16-08
-	Variable Capacitor 4 Gang,TUNING	D08-79
-	Dial Pointer	D12-43
-	Knob VOLUME,TUNING	S14-251B
	Knob SELECTOR,MODE, BALANCE,OUTPUT	S14-174B
	Knob BASS,TREBLE Dual back	S14-175B
	Knob BASS,TREBLE Dual front	S14-173B
-	Dial Glass	A12-AA33
-	Dress Panel	A05-AA33
	Dial Scale	A07-AA33
	Dial Scale Holder x4	A4858
	Dial cover	A4883
-	Case	A01-756

CHASSIS TOP VIEW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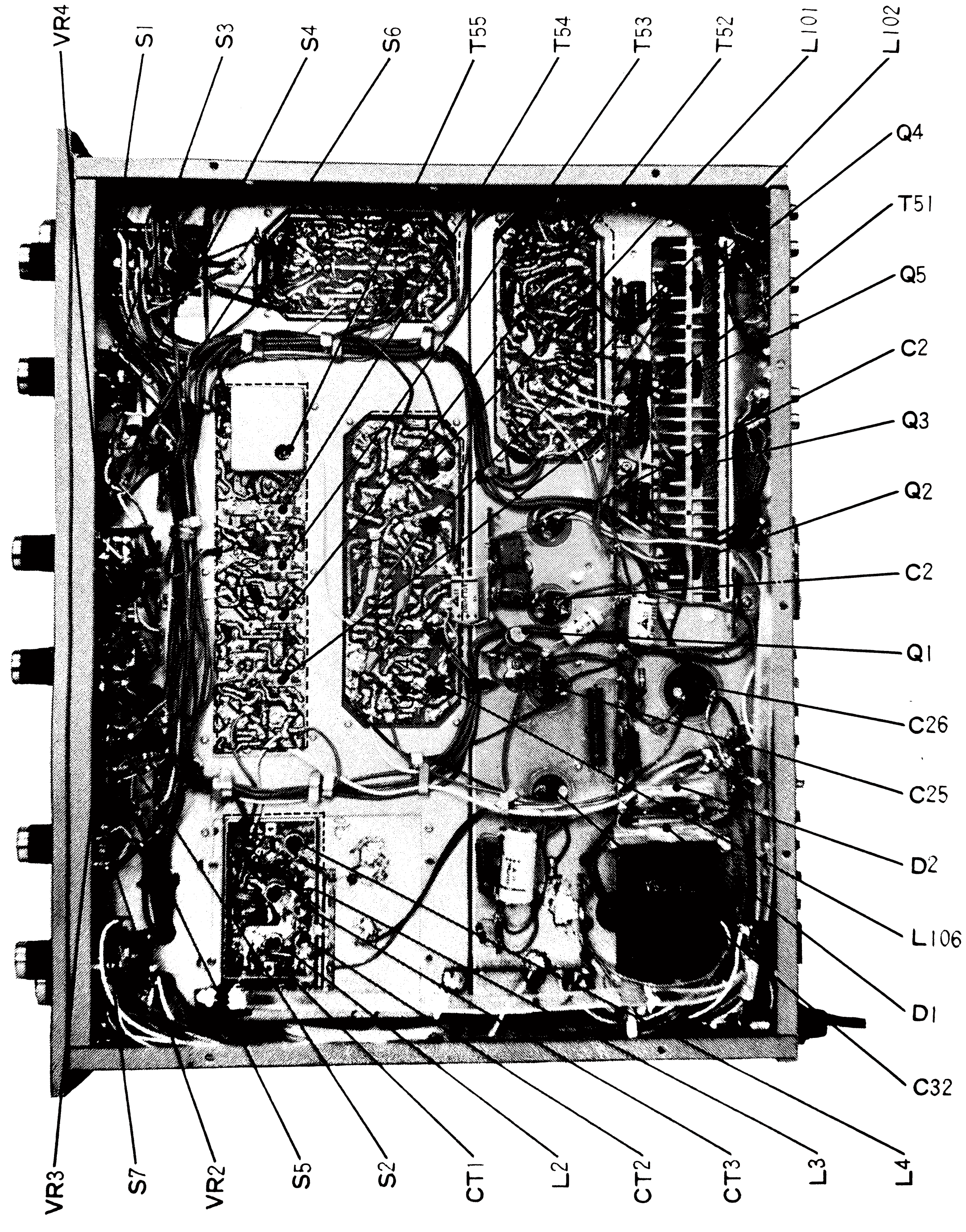
D1

CHASSIS BOTTOM VIEW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Q1
C26
C25
D2
L106
D1
C32
VR3
S7
VR2
S5
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CT1
L2
CT2
CT3
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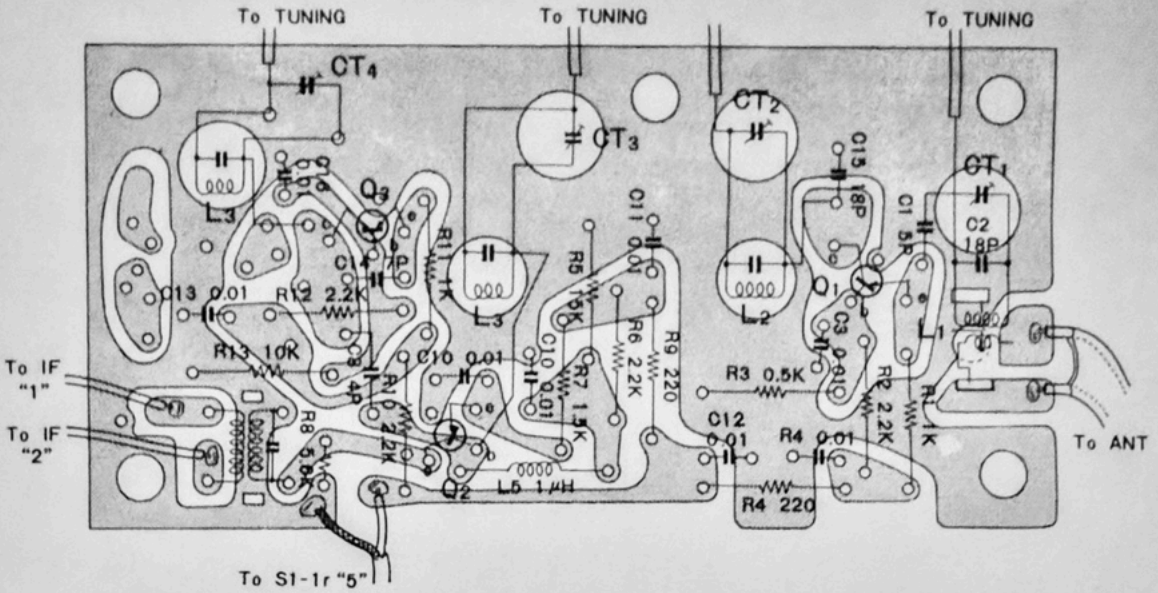
L4

SEALED CIRCUIT ASSEMBLIES - PHONTOM VIEWS

RF "UA11023B" Section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To TUNING
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CT3
CT2
CT1
L3
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Q3
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Q1
C14 7P
R11 1K
C13 0.01
R12 2.2K
R13 10K
C10 0.01
C10 0.01
C8 4P
R10 2.2K
R8 5.6K
L5 1 μH
R5 15K
R6 2.2K
R7 1.5K
R9 220
C11 0.01
C15 18P
C1 5P
C2 18P
C3 0.01
R3 0.5K
R2 2.2K
R1 1K
C12 0.01
R4 0.01
R4 220
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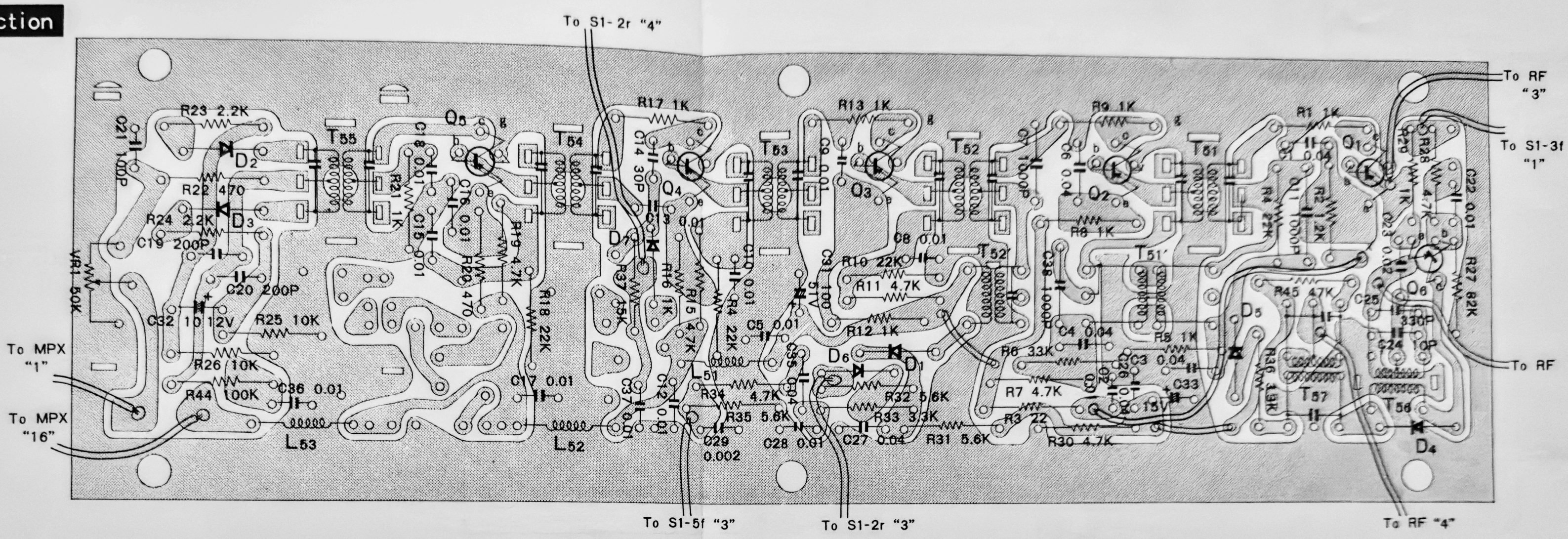
To IF "2"
To S1-1r "5"
To ANT

SEALED CIRCUIT ASSEMBLIES-PHONTOM VIEWS

IF "UA12024A" Section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To S1-3f "1"
To RF
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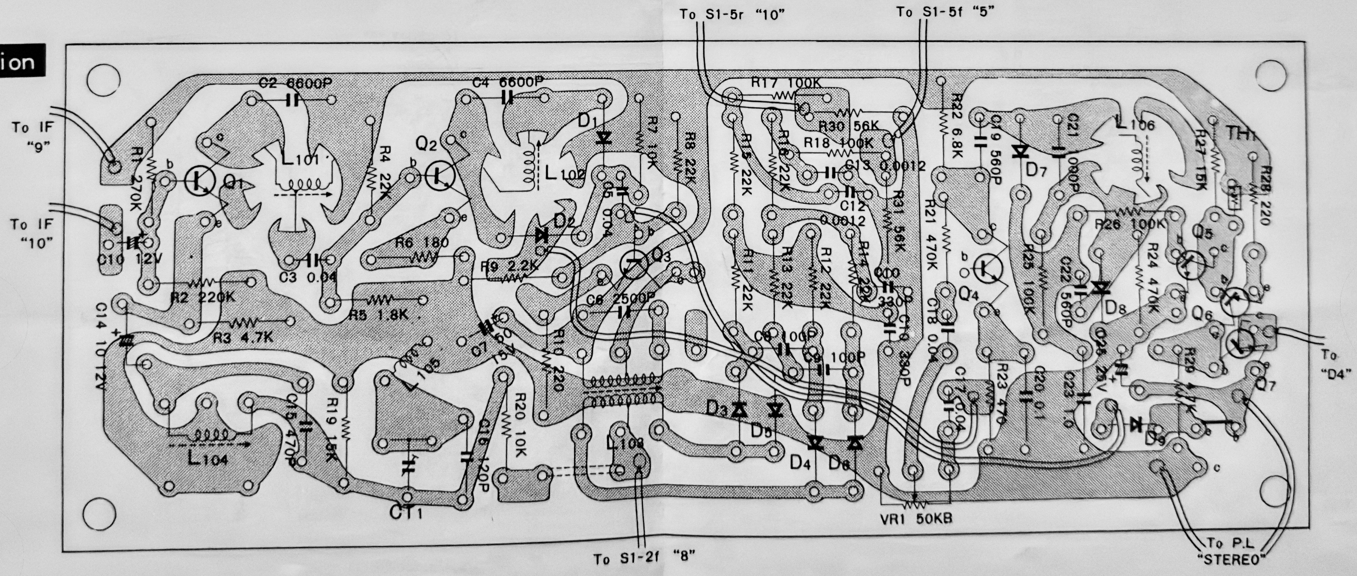
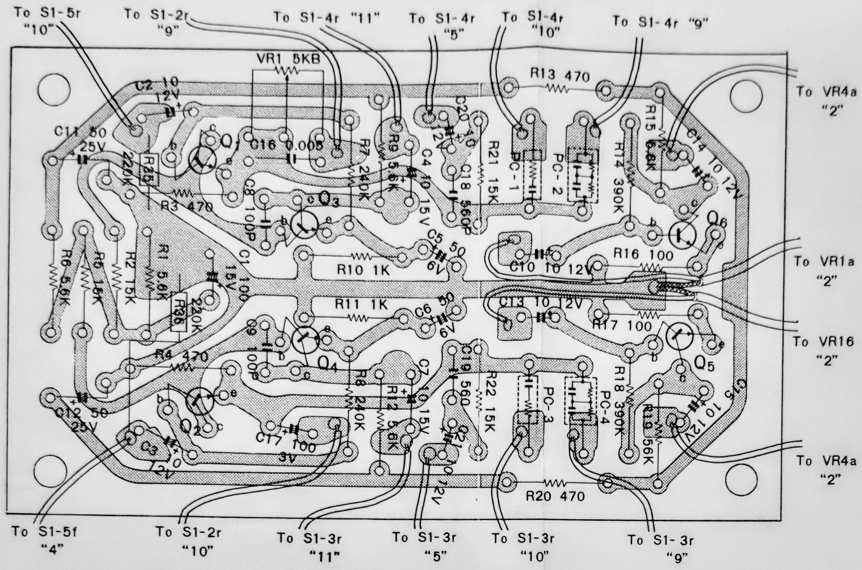
To S1-5f "3"
To S1-2r "3"
To RF "4"
R23 2.2K
C21 100P
D2
R22 470
R24 2.2K
D3
C19 200P
VR1 50K
C20 200P
C32 10 12V
R25 10K
R26 10K
R44 100K
C36 0.01
L53
T55
R21 1K
C18 0.01
C15 0.01
C16 0.01
Q5
R20 470
R19 4.7K
R18 22K
C17 0.01
L52
T54
R17 1K
C14 30P
Q4
C13 0.01
D7
R37 15K
R16 1K
R15 4.7K
R4 22K
L51
C37 0.01
C12 0.01
R34 4.7K
R35 5.6K
C29 0.002
C28 0.01
C5 0.01
C35 0.04
T53
C10 0.01
C31 100
R13 1K
C9 0.01
Q3
C8 0.01
R10 22K
R11 4.7K
R12 1K
D6
D1
R32 5.6K
R33 3.3K
C27 0.04
R31 5.6K
T52
T52'
C7 1000P
C38 1000P
R9 1K
C6 0.04
Q2
R8 1K
R6 33K
C4 0.04
R7 4.7K
R3 22
R30 4.7K
T51
T51'
R5 1K
C3 0.04
C33
R1 1K
C1 0.04
R4 22K
C11 1000P
R2 2.2K
Q1
R29 1K
R28 4.7K
C23 0.02
C22 0.01
R27 82K
Q6
R45 47K
C25
C24 10P
330P
D5
R36 3.9K
T57
T56
D4

MPX "UA14023A" Section

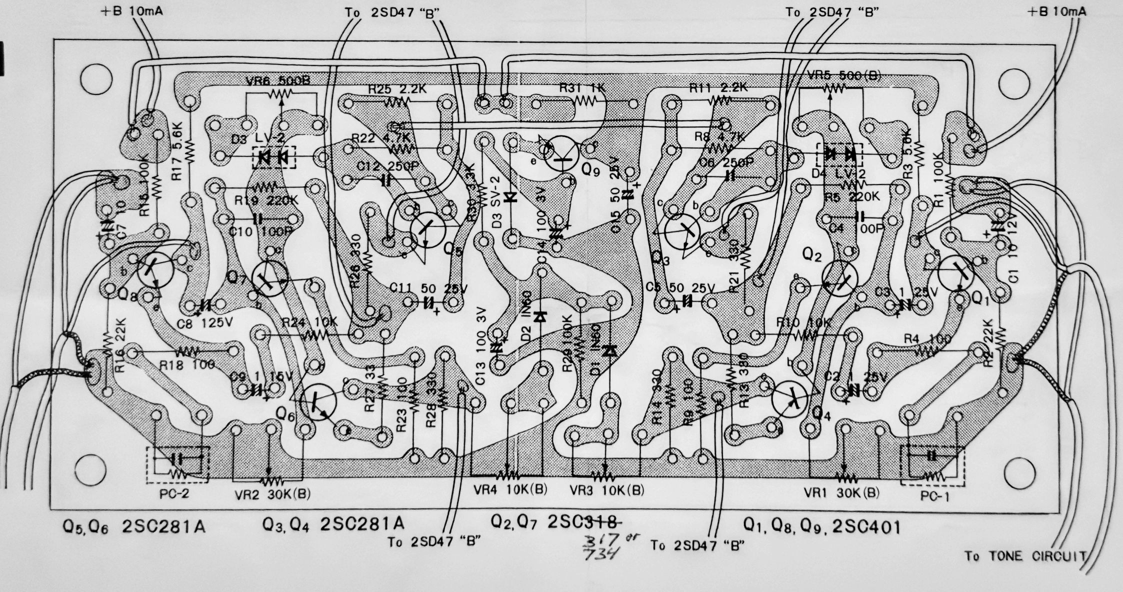

To S1-5r "10"
To S1-5f "5"
To IF "9"
To IF "10"
To "D4"
To S1-2f "8"
To P.L "STEREO"
C2 6600P
R1 270K
Q1
L101
C10 12V
R2 220K
R3 4.7K
C14 10 12V
C3 0.04
R4 22K
L104
C15 470P
R19 15K
C4 6600P
Q2
R6 180
R5 1.8K
L105
CT1
C16 120P
C7 5
R20 10K
D1
L102
D2
R9 2.2K
R7 10K
R8 22K
C5 0.04
Q3
C6 2500P
R10 220
L103
R17 100K
R30 56K
R18 100K
R15 22K
R16 22K
C13 0.0012
C12 0.0012
R31 56K
R11 22K
R13 22K
R12 22K
R14 22K
C11 330P
C8 100P
C9 100P
C10 330P
D3
D5
D4
D6
VR1 50KB
R22 6.8K
C19 560P
R21 470K
Q4
C18 0.04
C17 0.04
R23 470
C20 0.1
D7
C21 1000P
R25 100K
C22 560P
D8
C23 1.0
C26 25V
L106
R26 100K
R24 470K
R27 15K
TH1
R28 220
Q5
Q6
Q7
R29 4.7K
D9

SEALED CIRCUIT ASSEMBLIES-PHONTOM VIEWS

PRE AMP "8205" Section

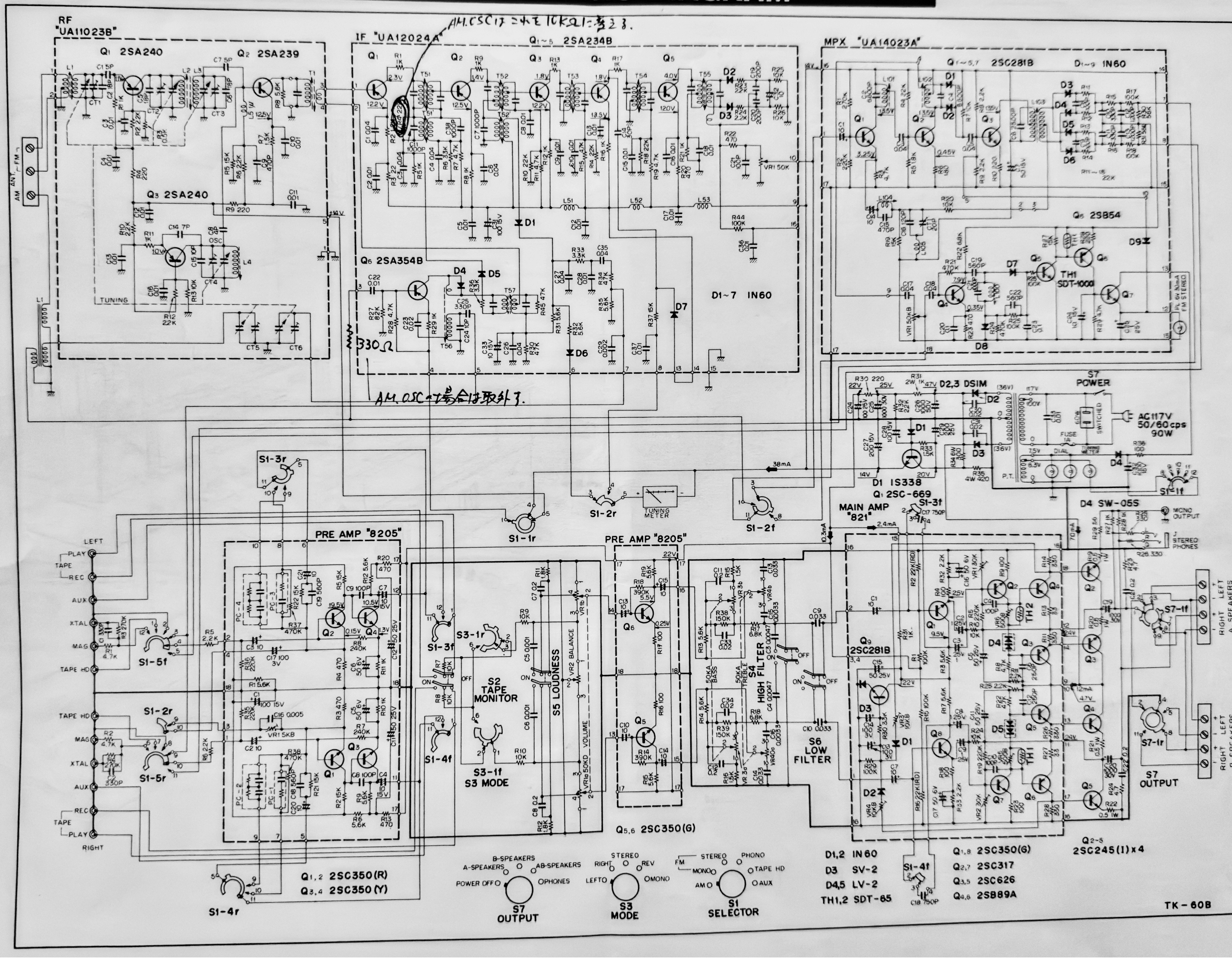

To S1-5r "10"
To S1-2r "9"
To S1-4r "11"
To S1-4r "5"
To S1-4r "10"
To S1-4r "9"
To VR4a "2"
To VR1a "2"
To VR16 "2"
To VR4a "2"
To S1-5f "4"
To S1-2r "10"
To S1-3r "11"
To S1-3r "5"
To S1-3r "10"
To S1-3r "9"
VR1 5KB
C2 10 12V
C11 50 25V
Q1
C16 0.005
R7 240K
R9 5.6K
C4 10 15V
C20 10 12V
C18 560P
R21 15K
PC-1
PC-2
R13 470
R14 390K
R15 6.8K
C14 10 12V
Q6
R35
220K
R3 470
C8 100P
Q3
C5 50 6V
R10 1K
C10 10 12V
R16 100
R6 5.6K
R5 15K
R2 15K
R1 5.6K
R36
220K
C1 100 15V
R11 1K
C6 50 6V
C13 10 12V
R17 100
R4 470
C9 100P
Q4
R8 240K
C7 10 15V
R12 5.6K
C19 560
R22 15K
PC-3
PC-4
R18 390K
R19 56K
Q5
C15 10 12V
C12 50 25V
Q2
C3 10 12V
C17 100 3V
C21 10 12V
R20 470

MAIN AMP "821" Section

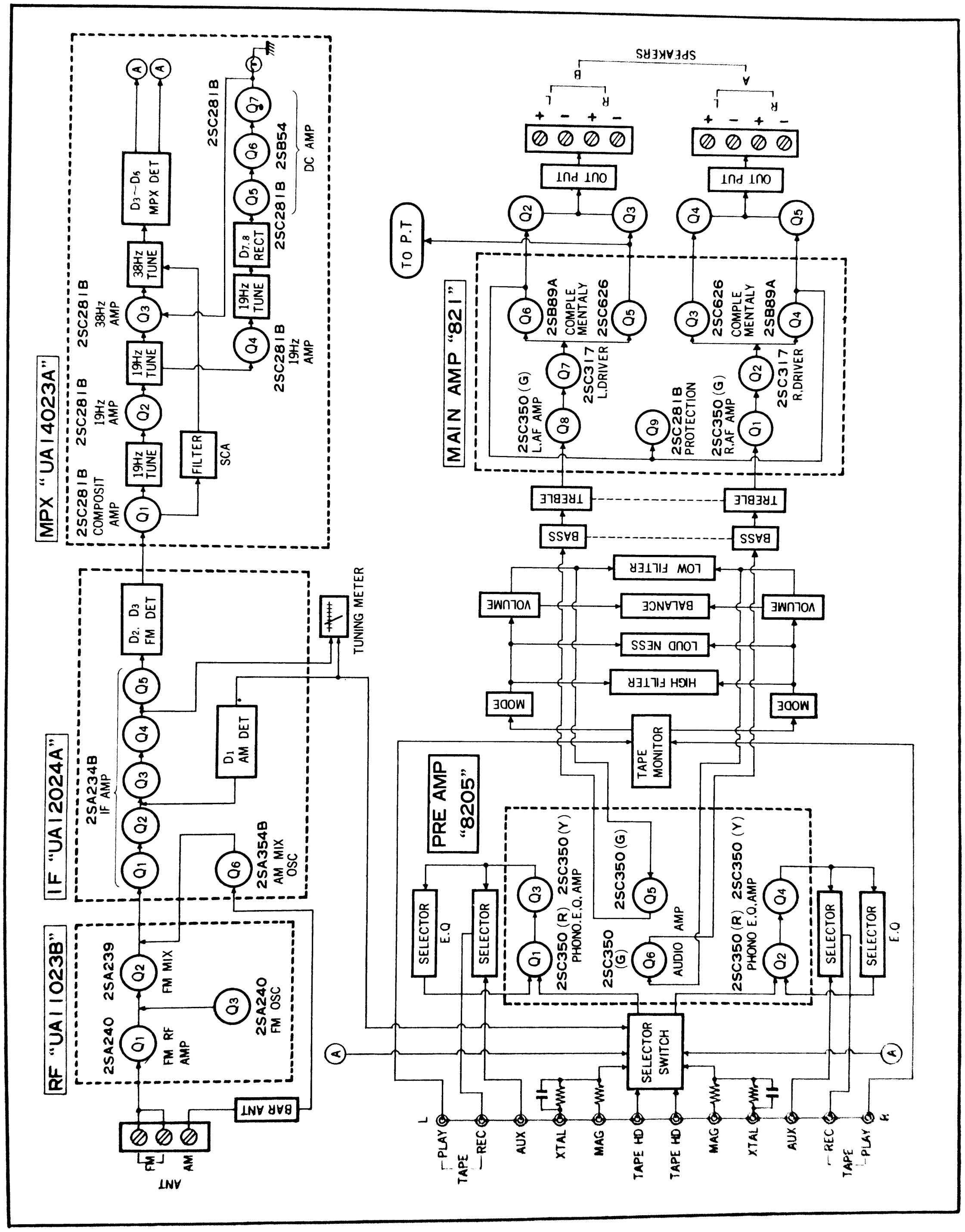

+B 10mA
To 2SD47 "B"
To 2SD47 "B"
+B 10mA
VR6 500B
R25 2.2K
R31 1K
R11 2.2K
VR5 500(B)
R17 5.6K
D3 LV-2
R22 4.7K
Q9
R8 4.7K
D4 LV-2
R3 5.6K
R15 100K
C12 250P
C6 250P
R1 100K
C7 10
R19 220K
R30 3.3K
D3 SV-2
C14 100 3V
C15 50 25V
R5 220K
C10 100P
C4 100P
C1 10 12V
Q8
Q7
Q5
Q3
Q2
Q1
R26 330
C11 50 25V
C5 50 25V
R21 330
C3 1 25V
C8 125V
R24 10K
D2 IN60
R29 100K
D1 IN60
R10 10K
R4 100
R16 22K
R18 100
C9 1 15V
R27 33
R23 100
R28 330
C13 100 3V
R14 330
R9 100
R13 330
C2 1 25V
R2 22K
Q6
Q4
PC-2
VR2 30K(B)
VR4 10K(B)
VR3 10K(B)
VR1 30K(B)
PC-1
To TONE CIRCUIT
To 2SD47 "B"
To 2SD47 "B"

Q_5, Q_6 2SC281A　Q_3, Q_4 2SC281A　Q_2, Q_7 ~~2SC318~~ 317 or 734　Q_1, Q_8, Q_9, 2SC401

SCHEMATIC DIAGRAM

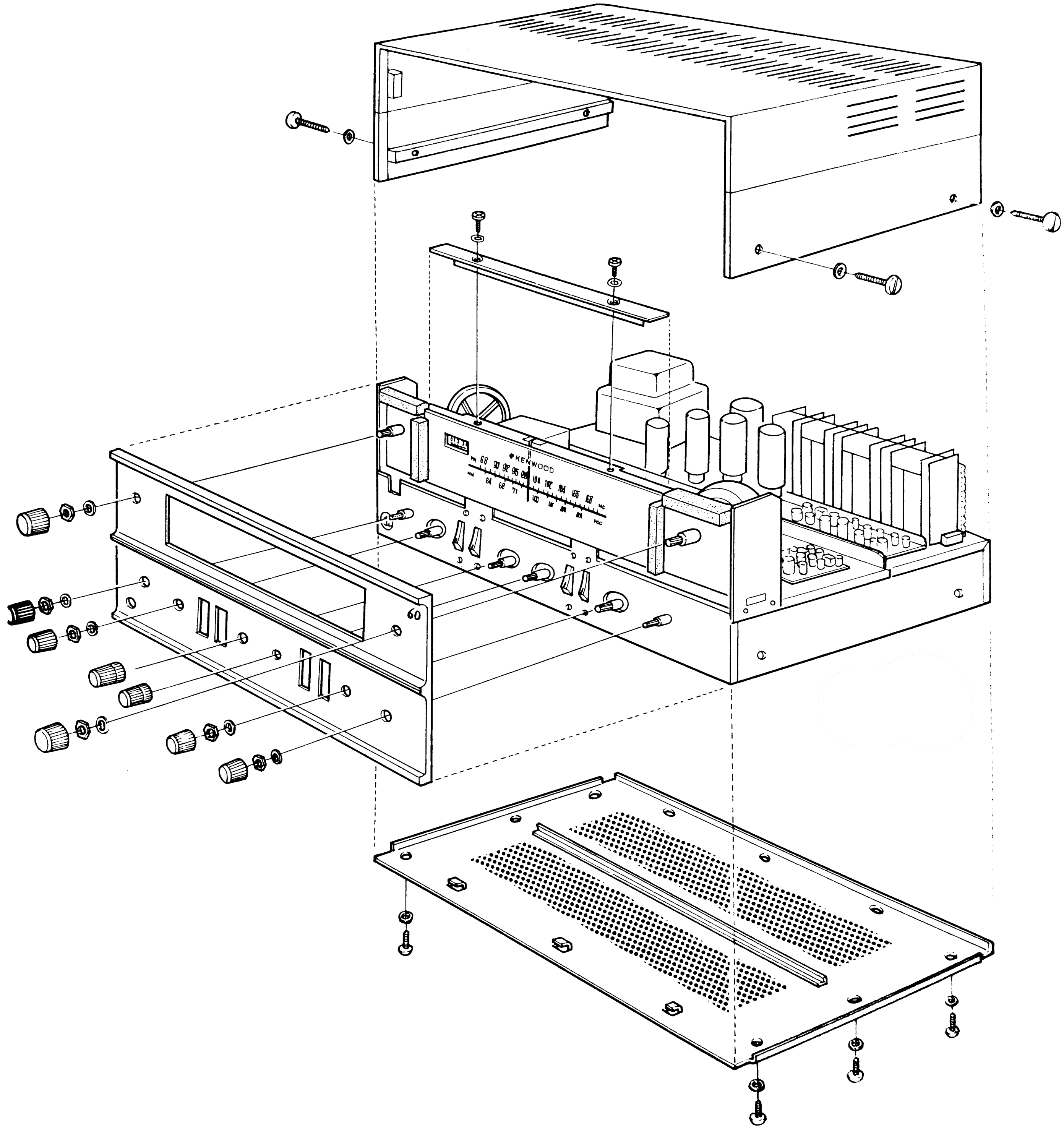

AM.OSCはこれを10KΩに変える.
330Ω
AM.OSCの場合は取外す.
RF "UA11023B"
Q1 2SA240
Q2 2SA239
Q3 2SA240
TUNING
OSC
AM ANT. FM
IF "UA12024A"
Q1~5 2SA234B
Q6 2SA354B
D1~7 IN60
MPX "UA14023A"
Q1~5,7 2SC281B
D1~9 IN60
Q6 2SB54
TH1 SDT-1000
PL 6V 30mA FM STEREO
PRE AMP "8205"
PRE AMP "8205"
MAIN AMP "821"
S2 TAPE MONITOR
S3 MODE
S5 LOUDNESS
VR2 BALANCE
VR1a 50KD VOLUME
50KA BASS
50KA TREBLE
S4 HIGH FILTER
S6 LOW FILTER
TUNING METER
D1 IS338
Q1 2SC-669
D2,3 DSIM
D4 SW-05S
S7 POWER
SWITCHED
FUSE
AC117V 50/60cps 90W
P.T.
DIAL
38mA
10.3mA
2.4mA
70mA
MONO OUTPUT
STEREO PHONES
LEFT
PLAY
TAPE
REC
AUX
XTAL
MAG
TAPE HD
RIGHT
Q1,2 2SC350(R)
Q3,4 2SC350(Y)
Q5,6 2SC350(G)
Q9 2SC281B
D1,2 IN60
D3 SV-2
D4,5 LV-2
TH1,2 SDT-65
Q1,8 2SC350(G)
Q2,7 2SC317
Q3,5 2SC626
Q4,6 2SB89A
Q2~5 2SC245(1)×4
S7 OUTPUT
RIGHT LEFT A. SPEAKERS
RIGHT LEFT B. SPEAKERS
B-SPEAKERS
A-SPEAKERS
AB-SPEAKERS
POWER OFF
PHONES
S7 OUTPUT
STEREO
RIGHT
REV
LEFT
MONO
S3 MODE
FM
STEREO
MONO
PHONO
TAPE HD
AM
AUX
S1 SELECTOR
TK-60B

BLOCK DIAGRAM



RF "UA11023B"
2SA240
FM RF AMP
2SA239
FM MIX
2SA240
FM OSC
IF "UA12024A"
2SA234B
IF AMP
2SA354B
AM MIX OSC
D1 AM DET
D2, D3 FM DET
TUNING METER
MPX "UA14023A"
2SC281B
COMPOSIT AMP
19Hz TUNE
2SC281B
19Hz AMP
19Hz TUNE
2SC281B
38Hz AMP
38Hz TUNE
D3~D6 MPX DET
FILTER
SCA
2SC281B
19Hz AMP
19Hz TUNE
D7,8 RECT
2SC281B
2SB54
2SC281B
DC AMP
ANT
FM
AM
BAR ANT
PRE AMP "8205"
SELECTOR E.Q
SELECTOR
2SC350 (R)
2SC350 (Y)
PHONO E.Q. AMP
2SC350 (G)
2SC350 (G)
AUDIO AMP
SELECTOR SWITCH
TAPE MONITOR
L
PLAY
TAPE
REC
AUX
XTAL
MAG
TAPE HD
TAPE HD
MAG
XTAL
AUX
REC
TAPE
PLAY
R
MODE
HIGH FILTER
LOUD NESS
BALANCE
VOLUME
LOW FILTER
BASS
TREBLE
MAIN AMP "821"
2SC350 (G)
L.AF AMP
2SC317
L.DRIVER
2SB89A
COMPLE MENTALY
2SC626
2SC281B
PROTECTION
2SC350 (G)
R.AF AMP
2SC317
R.DRIVER
2SC626
COMPLE MENTALY
2SB89A
TO P.T
OUT PUT
OUT PUT
SPEAKERS
A
B
L
R
+
−
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
A

REMOVALS DISASSEMBLE


KENWOOD
FM
68
90
92
95
AM
64
68
71
100
MC
KC
60

ALIGNMENT INSTRUCTIONS

Please read the following notes carefully before making any alignment adjustment.

1. Generator signal	:	Always work with the miminum generator signal sufficient to produce a satisfactory output indication.
2. Alignment tools	:	IF transformers require a plastic screwdriver-type alignment tool.
3. Dial pointer	:	Check pointer for alignment at left hand start mark.
4. MUTING control	:	Always place in minimum point.

1. FM SECTION "UA11023B" "UA12024A"

Instrument: FM signal generator, AC VTVM & Oscilloscope

STEP	Dummy Antenna	Signal Generator & Coupling	Signal Generator Frequency	Selector Switch	Tuning Dial Setting	Indicating Meter	Adjust	Remarks
1	Direct	High side to (101) *1 Low side to chassis	10.7MHz (Unmod.)	FM	Any non-interfering Setting	Tuning indicator	"UA11023A"T1 "UA12-24A" T1-4 Top & Bottom	Maximum Deflection
2	300 ohm	High side to FM Antenna terminal Low side to chassis	90MHz (400 Hz± 75KHz FM 500 µV)	FM	Tune for maximum,using tuning indicator	VTVM and oscilloscope at LEFT output jack of TAPE REC	"UA12024A" T5 Top & Bottom	Maximum Deflection and good wave form
3	300 ohm	High side to FM Antenna terminal Low side to chassis	90MHz (400 Hz± 75KHz FM)	FM	90 MHz	VTVM and oscilloscope at LEFT output jack of TAPE REC	"UA11023B" L1,L2,L3,L4	Maximum Deflection and good wave from
4	300 ohm	High side to FM Antenna terminal Low side to chassis	105MHz (400Hz ± 75KHz FM)	FM	105MHz	VTVM and oscilloscope at LEFT output jack of TAPE REC	"UA11023B" CT1,CT2, CT3,CT4	Maximum Deflection and good wave form
5	Repeat steps 3 & 4 until no further improvement is possible.							
6	300 ohm	High side to FM Antenna terminal Low side to chassis	98MHz 400Hz ± 75KHz FM 1000 µV	FM	Tune for maximum using, tuning indicator	VTVM and oscilloscope at LEFT output jack of TAPE REC	"UA12024A" VR1	Set the output level to 2V

*1 Refer to FM block "UA11023A" & "UA12024A" in Fig. and Photo for test point.

2. MPX SECTION "UA14023A"

(a) SCA Filter

Instrument : Audio signal generator & AC VTVM
Selector switch: "FM" position

STEP	Audio Signal Generator Coupling	Audio Signal Generator Frequency	VTVM & Oscilloscope Coupling	Adjust	Remarks
1	High side to (301) Low side to chassis	72KHz (0.5V)	High side to (302) Low side to chassis	"UA14023A" L4	Minimum deflection
2	High side to (301) Low side to chassis	67KHz (0.5V)	High side to (302) Low side to chassis	"UA14023A" CT1	Minimum deflection

Refer to MPX block "UA14023A" in Fig. and Photo for test point

ALIGNMENT INSTRUCTIONS

(b) MPX

Instrument: FM Stereo generator, Audio signal generator, AC VTVM & Oscilloscope

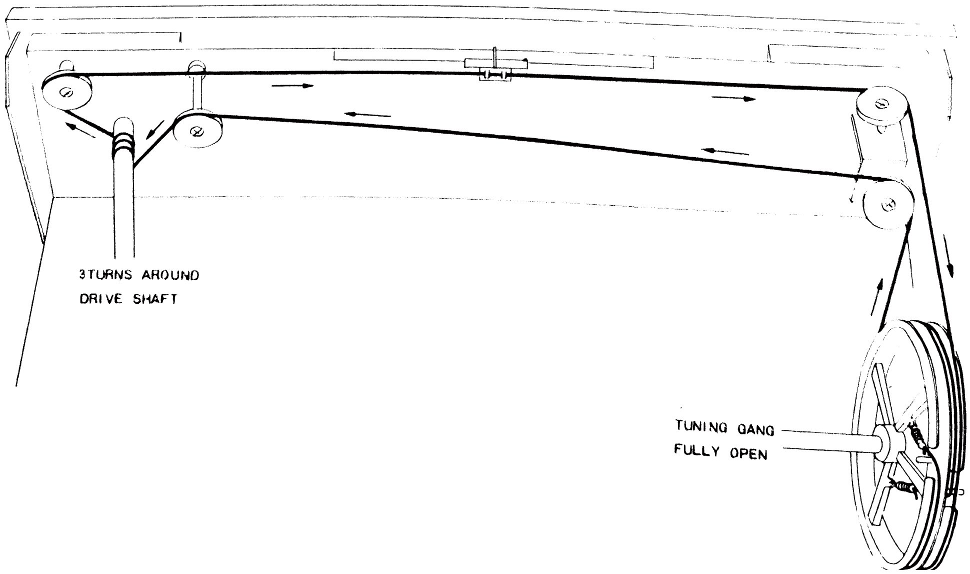
STEP	FM Stereo Generator				Selector Switch	VTVM & Oscilloscope Connection	Adjust	Remarks
	Coupling	Modulation Frequency	Input Selector	19KHz Pilot Carrier Switch				
1	High side to FM Ant. terminal Low side to chassis	OFF	OFF	ON	FM AUTOMATIC	High side to (303) Low side to chassis	"UA14023A" L1, L2	Maximum deflection
2	High side to FM Ant. terminal Low side to chassis	400 Hz	A-B or REVERSE	OFF	FM AUTOMATIC	LEFT or RIGHT output jack of TAPE REC	"UA14023A" L3	To obtain a stable wave form at 400 Hz on oscilloscope
3	High side to FM Ant. terminal Low side to chassis	2000 Hz	A or LEFT	ON	FM AUTOMATIC	"RIGHT" output	"8205" VR1	Minimum deflection
4	High side to FM Ant. terminal Low side to chassis	2000 Hz	B or RIGHT	ON	FM AUTOMATIC	"LEFT" output	"8205" VR1	Minimum deflection
5	Repeat steps 5 & 6 until no further improvement is possible							

(c) STEREO INDICATOR SECTION

1	High side to FM Ant. terminal Low side to chassis	OFF	OFF	ON	FM AUTOMATIC	High side to (401) Low side to chassis	"UA14023A" L6	Maximum deflection
2	High side to FM Ant. terminal Low side to chassis	OFF	OFF	ON	FM AUTOMATIC	LEFT or RIGHT output	"UA14023A" VR1	To operate when modulation is reduced 2dB below

* Refer to stereo Indicator block "UA14023A" in Fig. and Photo for test point.

DIAL CORD STRINGING



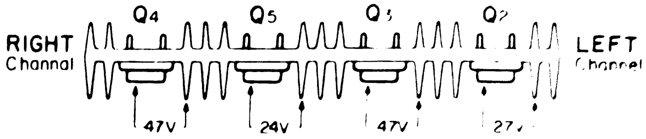
PROCEDURE FOR REPLACING OUTPUT TRANSISTOR

Symptions:

A. Loud hum in the speaker.
B. Power transistors, 2SC-245(1) heats up.
C. 1/2 -ohm resistor heats up.

Replacing method:

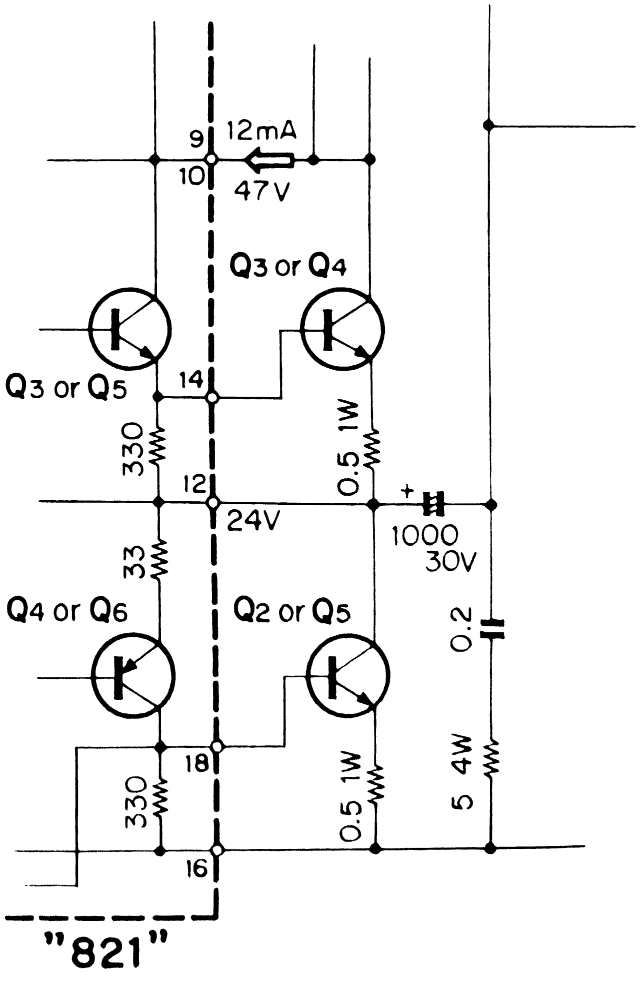
A. Replace the entire four transistors, 2SC-245(1), with either four new 2SC494(Toshiba), RCA2N-3878.


Q4
Q5
Q3
Q2
RIGHT Channal
LEFT Channel
47V
24V
47V
27V

Testings:

When replacement is completed, do not operate the unit without first testing the set. Perform the testing according to the following procedure:

1. With a variable transformer lower the AC line voltage to approximately 30 volts.
2. Using a tester, measure the voltage between the chassis and "c" of the power transistors Q2 and Q3. (or Q4 and Q5)
   If approximately 1/2 of the voltage at Q3 equals that at Q2, voltage is normal.
3. If approximately 1/2 of the voltage at Q3 equals that at Q2, then gradually raise the line voltage until it becomes 117V and then measure the voltages again. If they should read 47V and 24V approximately, they are normal.


9
12mA
10
47V
Q3 or Q4
Q3 or Q5
14
330
0.5 1W
12
24V
+
1000
30V
33
Q4 or Q6
Q2 or Q5
0.2
330
18
0.5 1W
5 4W
16
"821"

Adjustments:

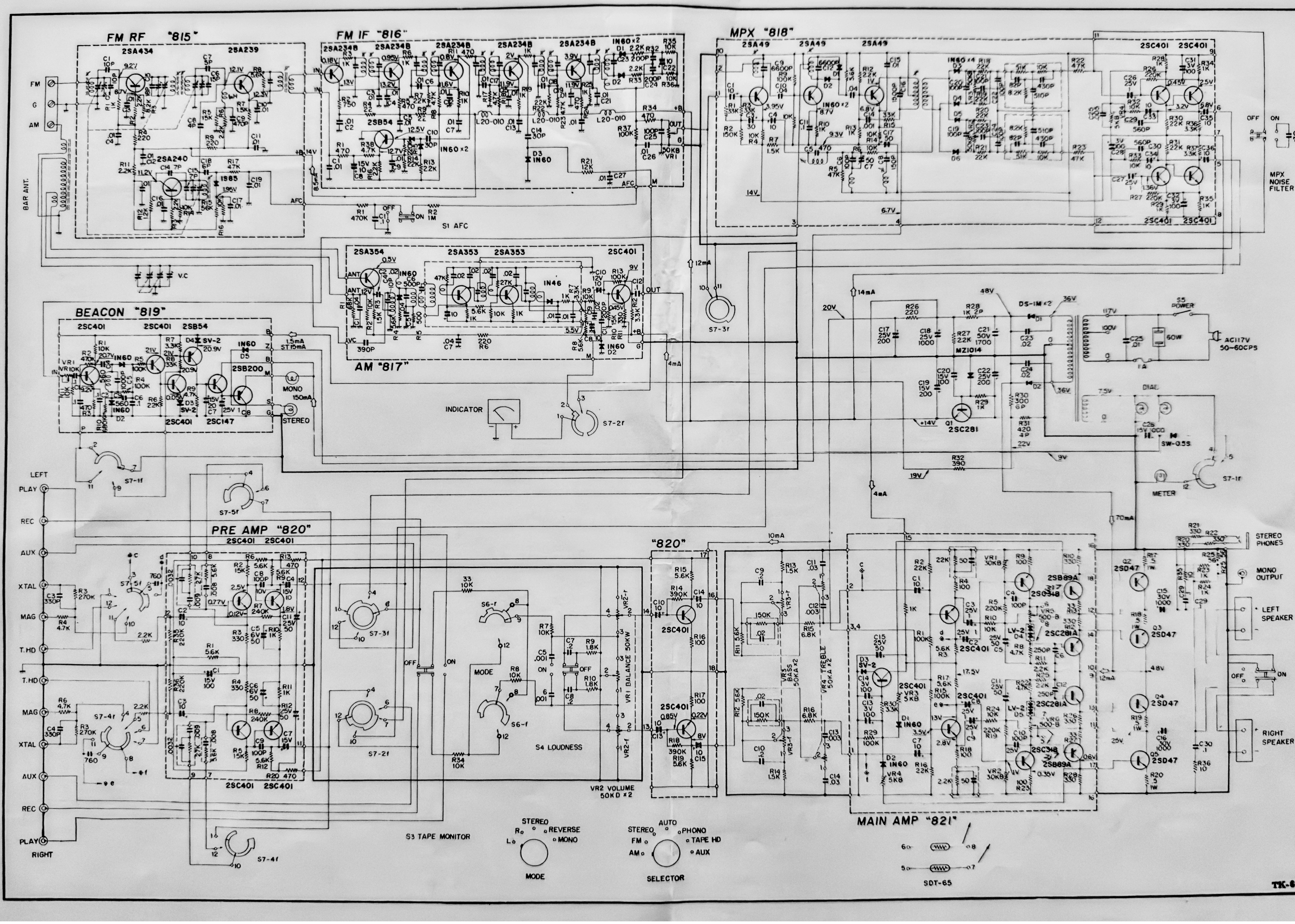
Connect dummy load to 16 ohm output terminals, and connect the oscilloscope input in parallel.
Set audio generator at 100mV 1000 cps and connect to the AUX terminals.
Advance the front panel Volume control until the sine-wave just begins to clip. Adjust balance control VR2 (left) or VR1(right) on the print board "821" until clipping is symmetrical.

KENWOOD ELECTRONICS, INC.

212 FIFTH AVENUE
NEW YORK, N.Y. 10010

3700 SOUTH BROADWAY PLACE,
LOS ANGELES, CALIFORNIA 90007.

SCHEMATIC DIAGRAM


FM RF "815"
2SA434
2SA239
2SA240
FM
G
AM
BAR ANT.
FM IF "816"
2SA234B
2SB54
1N60×2
S1 AFC
MPX "818"
2SA49
2SC401
MPX NOISE FILTER
OFF
ON
C2 750
AM "817"
2SA354
2SA353
2SC401
V.C
BEACON "819"
2SC401
2SB54
2SB200
2SC147
MONO 150mA
STEREO
INDICATOR
S7-2r
S7-3r
12mA
14mA
4mA
20V
48V
36V
DS-1M×2
117V
100V
S5 POWER
60W
AC117V 50-60CPS
MZ1014
2SC281
+14V
22V
19V
9V
DIAL
SW-0.5S
METER
S7-1r
70mA
LEFT
PLAY
REC
AUX
XTAL
MAG
T.HD
RIGHT
S7-1f
S7-5f
S7-4f
PRE AMP "820"
2SC401
S7-3f
S7-2f
OFF
ON
MODE
S6-r
S6-f
S4 LOUDNESS
VR1 BALANCE 50KW
VR2 VOLUME 50KD×2
"820"
10mA
VR3 BASS 50KA×2
VR4 TREBLE 50KA×2
MAIN AMP "821"
2SB89A
2SC348
2SC281A
2SD47
STEREO PHONES
MONO OUTPUT
LEFT SPEAKER
RIGHT SPEAKER
S3 TAPE MONITOR
STEREO
REVERSE
MONO
MODE
AUTO
PHONO
TAPE HD
AUX
AM
FM
SELECTOR
SDT-65
TK-60